Remarks

The Final Office Action mailed June 15, 2004 and Advisory Action mailed September 15, 2004 have been received and reviewed. Claims 1 and 9 having been amended, and claims 4-5, 12-13, 16, and 18 having been canceled (in the Amendment filed August 16, 2004), the pending claims are claims 1-3, 6-11, 14-15, 17, and 19-22. Reconsideration and withdrawal of the rejections are respectfully requested.

The amendment of claims 1 and 9 is supported by the language of originally filed claims 4 and 12, Table 1, and Figure 2, for example.

Affirmation of Provisional Election

An election to prosecute claims 1-8 and 17-22, Group I, was made in a Response to Restriction Requirement filed with the Patent Office on September 29, 2003.

Applicant's Representatives ask that the Examiner reconsider the restriction, especially with respect to Group II (claims 9-15). Both Groups are drawn to an NMR method of identifying a ligand-binding site, classified in class 324, subclass 307. Although the Group I claims do not require obtaining a quantum correlation spectrum as required by the Group II claims, they do not exclude it. Thus, the claims of Group I and II are interrelated and could be readily examined together.

Applicant's Representatives submit that the inventions as claimed can be readily evaluated in one search without placing undue burden on the Examiner. Applicant reserves the right to pursue examination of the non-elected claims in continuation or divisional applications.

The 35 U.S.C. §103 Rejection

The Examiner rejected claims 1-4, 6-8, 17, and 19-22 under 35 U.S.C. §103(a) as being unpatentable over **Veeraraghavan et al.**, "Structural Correlates for Enhanced Stability in the E2 DNA-Binding Domain from Bovine Papillomavirus," *Biochemistry*, 1999;*38*(49):16115-16124, or **Veeraraghavan et al.**, "^{1}H, ^{15}N, and ^{13}C NMR Resonance

Assignments for the DNA-Binding Domain of the BPV-1 E2 Protein," *Journal of Biomolecular NMR*, 1998;*11*(4):457-458, or **Hajduk et al.**, "NMR-Based Discovery of Lead Inhibitors That Block DNA Binding of the Human Papillomavirus E2 Protein," *J. Med. Chem.*, 1997;*40*(20):3144-3150. These rejections are traversed.

The cited art does not teach or suggest the recited method that allows for identification of a ligand-binding site in a DNA-binding and dimerization domain of an HPV-18 strain of papillomavirus E2 protein. This is significant in that it distinguishes ligand binding, particularly DNA binding, from both nonspecific binding and binding of the protein to itself (dimerization).

There is no teaching or suggestion in the prior art of a method for distinguishing a ligand-binding site of an HPV-18 strain of papillomavirus E2 protein from numerous other binding sites that are nonspecific or that are sites of the protein binding to itself.

It is respectfully submitted that Applicant has provided that which is not in the prior art or reasonably suggested by it. One cannot take the cited prior art and learn anything that would help in identifying a ligand-binding site in the DNA-binding and dimerization domain of an HPV-18 strain of papillomavirus E2 protein. The information is simply not present. The prior art did not disclose the DNA-binding and dimerization domain of an HPV-18 strain of papillomavirus E2 protein identified in the claims. The fact that NMR data is being used in the claims to characterize this structure should not negate the contribution made by Applicant.

Applicant has made a significant contribution to the art by identifying the chemical shifts in the DNA-binding and dimerization domain of an HPV-18 strain of papillomavirus E2 protein as recited in claims 1 and 9. This correlating or characterizing information can be used to identify a ligand-binding site in the DNA-binding and dimerization domain of an HPV-18 strain of papillomavirus E2 protein and, as such, is functionally related to the HPV-18 strain of papillomavirus E2 protein in that it is identifying information, much as is molecular weight or other analogous identifying information. Thus the inclusion of this characterizing information provides a useful and tangible result. Furthermore, it is not in the prior art and is distinguishable therefrom.

Summary

It is respectfully submitted that the pending claims 1-3, 6-11, 14-15, 17, and 19-22 are in condition for allowance and notification to that effect is respectfully requested. The Examiner is invited to contact Applicant's Representatives, at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

Respectfully submitted for
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January 10, 2005
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CERTIFICATE UNDER 37 CFR §1.8:
The undersigned hereby certifies that the Transmittal Letter and the paper(s), as described hereinabove, are being transmitted by facsimile in accordance with 37 CFR §1.6(d) to the Patent and Trademark Office, addressed to Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 10th day of **January, 2005**, at 3:05 pm (Central Time).

By: Sara E. Olson
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